TABLE 2.—*Free-air resultant winds (m. p. s.) during April, 1926*

Altitude, m. s. l.	Broken Arrow, Okla. (233 meters)				Due West, S. C. (217 meters)				Ellendale, N. Dak. (444 meters)				Groesbeck, Tex. (141 meters)				Royal Center, Ind. (225 meters)				Washington, D. C. (34 meters)	
	Mean		8-year mean		Mean		6-year mean		Mean		9-year mean		Mean		8-year mean		Mean		8-year mean		Mean	
	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.	Dir.	Vel.
Meters																						
Surface	N. 55°W.	0.9	S. 5°W.	2.4	S. 72°W.	2.9	S. 79°W.	1.6	N. 76°W.	2.1	N. 18°W.	1.6	N. 62°W.	0.4	S. 3°E.	2.2	N. 66°W.	2.5	S. 54°W.	1.9	N. 25°W.	1.6
250	N. 61°W.	0.9	S. 5°W.	2.5	S. 73°W.	3.1	S. 77°W.	1.8	----	----	----	----	S. 62°W.	0.3	S. 4°E.	2.9	N. 70°W.	2.7	S. 53°W.	2.0	N. 70°W.	2.9
500	S. 59°W.	1.3	S. 11°W.	3.9	S. 74°W.	4.7	S. 75°W.	2.7	N. 52°W.	3.6	N. 18°W.	1.6	S. 10°E.	1.4	S. 3°E.	4.4	N. 66°W.	5.0	S. 53°W.	3.8	N. 81°W.	4.7
750	S. 71°W.	1.9	S. 16°W.	4.7	S. 73°W.	5.3	S. 69°W.	3.4	N. 48°W.	4.2	N. 31°W.	1.2	S. 13°W.	2.2	S. 12°W.	5.0	N. 60°W.	6.2	S. 59°W.	4.8	N. 76°W.	6.8
1,000	S. 82°W.	3.0	S. 28°W.	5.2	S. 73°W.	6.3	S. 65°W.	4.1	N. 52°W.	4.4	N. 54°W.	1.4	S. 12°W.	2.4	S. 21°W.	5.2	N. 56°W.	7.3	S. 64°W.	5.5	N. 82°W.	9.9
1,250	S. 80°W.	3.3	S. 40°W.	5.4	S. 73°W.	8.6	S. 69°W.	5.7	N. 54°W.	4.8	N. 60°W.	2.2	S. 21°W.	2.8	S. 31°W.	6.1	N. 59°W.	8.9	S. 75°W.	6.5	----	----
1,500	S. 83°W.	3.7	S 52°W.	6.0	S. 77°W.	10.1	S. 71°W.	6.9	N. 57°W.	5.4	N. 63°W.	2.7	S 39°W.	3.3	S. 37°W.	6.7	N. 63°W.	10.1	S. 83°W.	7.3	N. 78°W.	10.0
2,000	N. 72°W.	5.5	S. 65°W.	7.1	S. 76°W.	10.9	S. 80°W.	8.3	N. 55°W.	7.3	N. 73°W.	3.5	S. 67°W.	5.2	S. 40°W.	7.7	N. 65°W.	12.0	S. 89°W.	8.5	N. 78°W.	11.6
2,500	N. 78°W.	6.0	S. 72°W.	7.9	S. 74°W.	11.1	S. 80°W.	10.0	N. 56°W.	9.8	N. 79°W.	5.1	S. 64°W.	5.8	S. 59°W.	8.3	N. 74°W.	14.0	N. 85°W.	9.0	N. 81°W.	14.2
3,000	N. 72°W.	5.3	S. 82°W.	7.8	S. 74°W.	13.7	S. 81°W.	10.7	N. 58°W.	11.6	N. 77°W.	6.8	N. 84°W.	4.3	S. 65°W.	10.1	N. 68°W.	11.6	N. 83°W.	10.0	S. 89°W.	15.2
3,500	N. 64°W.	6.3	S. 87°W.	10.0	S. 81°W.	10.5	N. 86°W.	11.5	N. 54°W.	12.2	N. 78°W.	8.2	S. 60°W.	5.2	S. 70°W.	10.1	N. 71°W.	15.8	S. 89°W.	11.8	N. 85°W.	12.8
4,000	N. 81°W.	6.3	S. 84°W.	11.4	S. 64°W.	9.2	N. 82°W.	12.5	N. 49°W.	13.8	N. 71°W.	9.6	----	----	----	----	N. 62°W.	20.2	N. 84°W.	14.6	N. 69°W.	13.2
4,500	N. 78°W.	8.3	S. 86°W.	12.2	S. 75°W.	12.2	N. 63°W.	13.2	N. 50°W.	12.8	N. 60°W.	9.6	----	----	----	----	N. 62°W.	22.3	N. 76°W.	14.7	N. 76°W.	13.7
5,000	N. 65°W.	6.2	N. 81°W.	10.6	----	----	----	----	N. 68°W.	16.0	N. 73°W.	15.3	----	----	----	----	----	----	----	----	----	----

THE WEATHER ELEMENTS

By P. C. DAY, in Charge of Division

PRESSURE AND WINDS

While the weather did not vary greatly at any particular time from that usually expected at intervals in April, still the long continuance of certain types of weather resulted in the establishment of unusual conditions for the month as a whole, particularly as to temperature and precipitation.

Variations in pressure were mainly moderate and there were few extensive or severe storm areas.

The most important cyclonic conditions were those which gave beneficial precipitation over the Pacific coast early in the month, mainly heavy rains about the 5th to 9th throughout California, particularly in the south, where most needed, greatly relieving a severe drought that had persisted since near the middle of February, and affording a long-delayed opportunity for replenishing alarmingly low-water supplies. Precipitation during this period was in many instances the greatest ever recorded in April, and removed all danger to crops from a water shortage. The rain area extended into other portions of the Southwest, giving frequent precipitation in Arizona and portions of surrounding States, where locally the monthly falls were equal to or even greater than occasionally occur in an entire year.

Over most other southern districts precipitation was rather frequent during the first half of the month, due to the passage over those districts of cyclonic areas usually of only moderate strength. During the latter half there was little precipitation over those districts, and over most central and northern sections of the country storm activity throughout the month was unimportant.

The principal cyclones aside from those mentioned were those of the 1st to 3d and 24th to 25th. During the 1st to 3d a low-pressure area moved from the southern Plains northeastward to the Lower Lakes, attended by some unusually heavy snows over the northern side of the storm track, particularly in a narrow area from the southern Rocky Mountains northeastward through northern Kansas to southern Lake Michigan. Locally the depths ranged up to 10 inches or more and with considerable depths remaining from the heavy falls over practically the same area late in March, conditions approached those associated with a severe winter storm.

The storm of the 24th and 25th moved from the middle Mississippi Valley to the Great Lakes, where on the morning of the 24th the pressure had fallen to only slightly above 29 inches, and precipitation had covered a wide area of the central valleys extending from the Gulf of Mexico to the Canadian border. During the following 24 hours the storm center advanced to western Ontario, but precipitation was confined mainly to the northern districts from the Great Lakes and Ohio Valley eastward. During the last few days several unimportant cyclones moved over the Great Lakes and thence northeastward, but the accompanying precipitation was light and confined to rather small areas.

Mild anticyclonic conditions persisted over the interior during much of the month, particularly over the Missouri Valley, though during the latter part high pressure was rather persistent over the Gulf States.

The average pressure was highest from the upper Missouri Valley southeastward to the Florida Peninsula, and lowest over the Canadian Maritime Provinces, being generally considerably above normal in the first-mentioned area and also somewhat above over adjacent areas on the east and west, becoming below normal over the Atlantic coast States from the Carolinas northward and over the eastern Canadian Provinces and along the Pacific coast.

Generally the average pressure for April is distinctly less than that for March in all districts save in the far Northwest and extreme Northeast.

For April, 1926, the average was nearly everywhere less, markedly so from the Missouri Valley westward and over western Canada; also, though to a less degree, over eastern Canada, where it is usually higher.

The prevailing winds were mainly from west to northwest from the Mississippi Valley eastward, southerly over Texas and some near-by areas, and generally northerly in the Missouri Valley and far Northwest.

The severe wind and other storms occurred locally at widely separated dates and places.

The greatest damage by electrical storms occurred near San Luis Obispo, Calif., and near Los Angeles, on the 7th. A full account of the former is printed elsewhere in this number of the REVIEW.

About the 23d and 24th rather numerous local storms of varying severity occurred from Texas northeastward to the Great Lakes in connection with the cyclone moving over that area. Several tornadoes were reported, mostly from Texas and Oklahoma, but without great loss of life or damage to property.

About the 27th high winds in Iowa and adjacent areas resulted in some of the worst dust storms ever known there. Much damage resulted from drifting soil filling roadways, uncovering seeds and the roots of growing crops in some sections and entirely covering vegetation in others.

Details concerning the more important storms appear at the end of this section and elsewhere in this issue.

TEMPERATURE

Important day-to-day changes in temperature were confined mainly to small areas, and rarely exceeded 20° in 24 hours, though in a few instances at the end of April there were some sharp falls, notably in the vicinity of southern Lake Michigan, where a fall of 35° in one hour occurred.

As in March, temperatures were below normal from the Southern Plains northeastward to the Great Lakes and to the eastward and above normal to the westward. In fact over much of the two divisions referred to temperatures continued similar throughout the two months.

Over much of the territory east of the Mississippi River the weather was decidedly cool during most of April, some sections having temperatures below normal, or only slightly above, nearly every day. As a result the average temperatures were in many cases the lowest of record or at least the lowest save April, 1907, when records for low monthly means over much of this area were established.

While new records for continued low temperatures were being made in much of the eastern third of the country high temperatures were the rule in the area from the Rocky Mountains westward, where the month was even more continuously warm than it was cold in the East. Over portions of the Plateau region and over much of the Pacific coast region every day was normal or above, the monthly means at many points being the highest ever known in April. Similar conditions had existed during the two preceding months and in some of the northern portions of the area since the beginning of the year.

The warmest periods were mainly during the last decade, and chiefly during the last day or two in the Ohio and upper Mississippi Valleys and the far Northwest. In the Pacific Coast States the maxima during this decade, particularly on the last two days, were frequently the highest of record for April. In portions of Texas and the middle Gulf States the 5th and 10th were the warmest days.

The lowest temperatures were observed on the 1st or 2d over nearly all districts from the Mississippi River westward and generally in the Gulf and South Atlantic States, frequently on the 4th and 5th in the Great Lakes region and Ohio Valley, on the 12th over the Northeastern States, and on the 19th and 20th in the southern Appalachian region, where in a few instances the minima on the 20th were the lowest ever reported so late in April.

Temperatures below freezing occurred at some point in every State except Florida, where 35° was the lowest observed. In the southern and coast districts of the South Atlantic and Gulf States and at the lower elevations in the Southwestern and Pacific Coast States large areas were without freezing temperatures.

PRECIPITATION

Precipitation, also, showed some sharp contrasts in different parts of the country, as compared with the normal for April and with the amounts recorded in the preceding month.

Precipitation was below normal over most of the country, the only portions having monthly totals above being a narrow area from northeastern Missouri over central Illinois and most of Indiana, and thence northeastward to the Lower Lakes and northern New England; over most of Florida; and generally from Texas westward to the Pacific, including the central portions of the Plateau region and practically all of California.

It was the driest April of record at many points in the Missouri Valley and the far Northwest, and decidedly dry in the central and northern portions of the middle and east Gulf States, the southern drainage of the Ohio River and generally over the Middle and South Atlantic States, where locally it was also the driest April of record.

On the other hand, the greater part of California had phenomenally heavy rains, in some cases more than six times the normal and decidedly the greatest ever reported in April. These heavy rains following an abnormally dry March were especially timely and beneficial.

Rainfall was heavy also over the greater part of Arizona and portions of adjacent States, including Colorado. In this area precipitation was well distributed through the month, fell in moderate amounts on numerous dates, and was largely absorbed in the soil. It was also unusually heavy in portions of southwest, north, and northwest Texas; portions of central and northern Florida had heavy rains during the first half, though drought conditions prevailed toward the end of the month.

SNOWFALL

The month opened with snow and typical winter conditions over a considerable area from the southern Rocky Mountains northeastward to the Great Lakes, due to an unusually heavy snowstorm at the end of March. This was augmented greatly during the first two or three days of April by additional snow over nearly the same area, still further delaying traffic over much of this territory, particularly in the vicinity of southern Lake Michigan, where railway operations were seriously delayed by deep drifts and many highways were closed for several days. Snowfall from this storm was the heaviest ever experienced in April over much of the area covered.

Over most of the country from the Great Lakes eastward snowfall was about normal, except that it was above in New England, nor was there material snowfall north of the area referred to previously as extending from the southern Rocky Mountains northeast to Lake Michigan.

In portions of northern New Mexico and southwestern Colorado snowfall for the month was large, reaching maximum depths of nearly 5 feet on some of the higher mountains.

On the high mountains of California probably less snow fell than frequently occurs in April, and this melted rapidly on account of the unusual warmth that prevailed

during much of the month. Over the northern mountain regions the snowfall appears to have been near normal.

At the end of April snow had practically disappeared, except in northern New England, where much of the ground was still covered, and in the high mountains of the West.

Due to continued cool weather, ice on the Great Lakes melted slowly and opening of navigation was delayed. At Buffalo the harbor was closed during the entire month, the ice fields being probably the heaviest for April in 50 years.

RELATIVE HUMIDITY

Despite the general coolness over the eastern two-thirds of the country, the relative humidity was mainly below average, due to the general lack of rain, while over the Southwest there was a general excess, despite the prevailing warmth, this due to the unusual rainy condition over that part of the country.

The deficiencies were large, 15 to 25 per cent, in the Missouri Valley, also to a less degree in the Appalachian Mountain region. In the far Southwest the excess was large, ranging from 10 to nearly 30 per cent.

SEVERE LOCAL HAIL AND WIND STORMS, APRIL, 1926

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path, yards[1]	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Raywood, Tex.	2	4:15 a. m.	4 mi.		$2,000	Hail	Character of damage not reported	Official, U. S. Weather Bureau.
At sea off La Jolla, Calif.	4–5			4		Gale	Small motor boat wrecked	Do.
San Diego County, Calif. (southwest part of).	5–6				300,000	Straight winds, rain, and 3 tornadoes.	Severe damage by flooding; many persons injured and buildings wrecked or damaged; trees and fruit badly injured. Greatest damage in vicinity of San Diego.	Do.
Crawford, Tex. (near)	6	5 p. m.	10		4,000–5,000	Tornado	Some damage to buildings; two persons injured	Do.
Laredo, Tex. (near)	6	5:30–6 p. m.			215,000	Hail	Approximately 1,300 acres of onions destroyed by hail which fell to a depth of 6 to 18 inches. Some damage to fruit and windows.	Do.
Brea Field, near Los Angeles, Calif.	7	A. m.			3,000,000–4,000,000	Electrical	Oil tanks fired	Do.
Red Bank, S. C.	7	6:15 p. m.			12,000	Small tornado	Property damaged over a path 6 miles long; two persons injured.	Do.
Center Point, Ark.	7	10 p. m.				Heavy hail	One orchard damaged considerably	Do
Edna, Calif. (near San Luis Obispo).	7–8			2	15,000,000	Three tornadoes and electrical.	Oil tanks fired by lightning; tornadoes evidently caused by heat from burning oil; other property damage.	Do
Fresno, Calif.	8					Hail	Slight damage to fruit trees in city	Do.
Odessa, Fla.	8	4 p. m.	10 mi.		5,000	Heavy hail	Considerable injury to crops; roofs and windows slightly damaged.	Do.
Brownwood, Tex.	9	P. m.				Tornadic wind	A number of buildings damaged	Dallas Morning News (Tex.)
Fort Worth, Tex.	9					Wind	Many plate glass windows broken; signs demolished; telephones out of order.	Do.
Mississippi coast	9–10				40,000	High winds	Small craft beached; several schooners sunk; poles blown down; power company suffers heaviest loss.	Times-Picayune (New Orleans, La.).
Southern Louisiana	10				900	do	Cabins and timber blown down, other buildings damaged; livestock killed. Telephone and electric service interrupted.	Official, U. S. Weather Bureau.
Davidson, Blount, Cocke, Jefferson, and Trousdale Counties, Tenn.	11–12					Hail	Window panes broken; early gardens, tobacco beds and fruit trees injured.	Do.
Brewster County, Tex. (southern part of).	14		4 mi.			do	No crops in this area; damage to grass slight. Path 35 miles long.	Do.
Uvalde, Tex. (near)	20	8:30–11 a. m.	1–8 mi.			Heavy hail	Large stones fell to depth of 12 inches in places; oats flattened, trees, windows and bushes damaged; poultry injured.	Do.
Sabinal, Tex. (near)	20	12–2 p. m.	1,760–2,640		10,000–20,000	Hail	Heavy loss to crops and honey industry	Do.
Boyce, La.	21			1		Tornadic wind	Considerable property damage; traffic delayed by débris.	Shreveport Times (La.).
Winnfield, La., and vicinity.	21					Wind and rain	Many shade trees and timber blown down; telephone and telegraph lines out of commission.	Do.
San Augustine, Tex. (15 miles southwest of).	21	8 p. m.				Tornado and straight wind.	Timber and buildings in path destroyed; other damage by straight wind over path 6 miles long.	Official, U. S. Weather Bureau.
Mobile, Ala.	22	6:27 a. m.				Squall	Shed unroofed and a few poles and fences blown down.	Do.
Cairo District, Ill.	22				100	Hail	Truck, hotbeds, and windows damaged	Do.
St. Joseph, La. (near)	23	3:30 p. m.	2,640		3,000	Wind	One residence, a barn, and two small buildings blown down; telephone lines damaged; path 12 miles long.	Do.
Southeastern Johnson and southwestern Atoka Counties, Okla.	23	4:27 – 5:30 p. m.		4	110,000	Tornado	Considerable property damage, crop loss small; nine persons injured.	Do.
Hiwassee, Ark.	23	5 p. m.	440		3,500	Small tornado	Character of damage not reported	Do.
Sallisaw (near), Okla., to Branch, Ark.	23	5 p. m.		1	10,000	Straight winds and tornado.	Considerable damage over path 52 miles long, most of which occurred in the vicinity of Fort Smith.	Do.
Weatherford, Tex.	23	5 p. m.	30			Tornado and hail	Three farm houses completely destroyed; other damage by hail.	Do.
Keytesville, Mo.	23	P. m.			3,000	High wind	A few barns, poultry houses, and poles blown down.	Do.
Hannibal, Mo.	23	5–6 p. m.			12,000	Thunderstorm and wind.	Considerable property damage reported; one person injured; probably same storm that was felt at Keytesville.	Do.
Thorp Springs (near), Tex., to Granbury (near), Tex.	23	6–6 : 30 p. m.	150			Tornado	Buildings, timber and crops in path destroyed	Do.
Eastern Oklahoma	23	P. m.			50,000	Destructive hail	Crop damage not heavy but trees suffered severely; some property damage reported.	Do.
Grady, Camden, Bearden, Lonoke, Bentonville and Etna, Ark.	23	P. m.			50,000	Electrical and straight wind.	Minor wind damage; commissary at Bearden destroyed by lightning.	Do.

[1] "Mi." signifies miles, instead of yards.